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08/15/2002

**TECHNICAL ASSISTANCE
RCRA ENFORCEMENT AND PERMITTING ASSISTANCE (REPA) ZONE 3
CONTRACT NO. 68-W-02-022**

Work Assignment: R10209, FMC, Pocatello, Idaho
Task 5, ROD Amendment

Deliverable: REPA3-1009-02

Documents Reviewed: Miscellaneous documents related to the slag pile at the FMC
Elemental Phosphorus Production Facility Located in
Pocatello, Idaho

Linda-

I reviewed the Superfund records and looked for information related to slag. There was quite a bit of information available, but I think I pulled out the most relevant parts and have forwarded it to you along with what Rob Hartman sent. Here are my thoughts:

1. The radioactivity level of slag seems to be pretty well understood, but not specifically for the Dry Valley Ore that has been most recently used at the facility. I think the Dry Valley has slightly higher levels than the Gay Mine, but I don't think there is a huge difference. I spoke with Rob Hartman, and he may be willing to provide us with information at next weeks meeting. The existing data indicates that workers in the vicinity of the slag pile will receive exposures in a range of approximately 40 $\mu\text{R/h}$ – 100 $\mu\text{R/h}$. Perhaps higher for slag processed from the Dry Valley mine.
2. In the "The Need For Radiation Controls In The Phosphate And Related Industries" paper I have enclosed, the radium activity is listed as ~40 pCi/g for slag for the Idaho area. The Uranium Mine Tailings Radiation Control Act (UMTRCA) lists the limits for mine tailings as 5 pCi/g above background. Regarding potential placement of a cap to act as shielding, I think the question is whether a 1-foot soil cap will bring the level down to 5 pCi/g. I think there is a good chance a 1-foot cap, or something close will do the job. We should ask FMC to assess this. It should be easy and straightforward.
3. Along those lines, according to UMTRCA (Sec. 192.02), the cap is supposed be effective for up to 1,000 years, to the extent reasonably achievable, and in any case, 200 years. We need to assess (or have FMC assess) the ability for a 1-foot cap to maintain itself for that time period. One key parameter will be the ability of a 1-foot cap to sustain vegetation.
4. There were some interesting radiation surveys in the Superfund file. There is flyover data from 1986, which is really too general to be of much use. There is also the radiation survey that Rob Hartman sent (enclosed). In going through the Superfund files I also found two radiation surveys that EPA conducted in 1977 at Simplot and FMC (FMC report is enclosed). It looks like the FMC radiation survey parallels the one EPA did in 1977. However, as you might expect, the FMC results are lower with respect to the slag. FMC says about 50 $\mu\text{R/h}$ and EPA says about 100 $\mu\text{R/h}$. Not that surprising. Maybe the Dry Valley ore body yields an even higher (150?) level in the slag, maybe not. Regardless, I think the question is how

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much radioactivity will a 1-foot soil cap effectively shield? My gut feeling is quite a bit, but FMC should be able to model this easily. Again, the biggest issue may be whether a 1-foot cap will last 200+ years.

5. Radon gas will be generated in the slag pile. Some type of accommodation will need to be made for the venting of the gas. UMTRCA has limits that the vented radon cannot exceed in ambient air. FMC should assess this, but I don't think it will be a problem.
6. Potentially big issues are roads and other places at the facility where there is uncovered slag fill. I suspect the UMTRCA limits are exceeded in these instances. We need to determine what to do in these instances in order to be consistent (and for consistency in the future at Simplot). Do they cap these areas? Cover the roads with another material? Stockpile the slag from the roads in the slag pile? There is the potential for a lot of earth moving with respect to this. The ore pile and related areas may be a problem too.
7. Radon in new buildings is potentially a problem. A deed restriction should be in place that requires radon resistant buildings and radon monitoring for new buildings, and should consider limiting new construction to areas that do not have slag fill. The 1977 EPA radon survey identified very high levels of radon in the Condenser and Fluid Bed Building. It was not clear why the levels were so high, but it estimated that a worker in the building would be exposed to 10 rem/yr. The limit for an occupational worker is 5 rem/yr while that for a member of the public is 0.1 rem/yr.

BOOZ ALLEN & HAMILTON INC.

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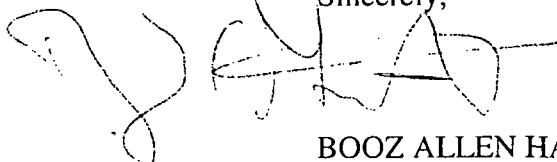
Subject: EPA Contract No. 68-W-02-022, Work Assignment R10209, Task 5
ROD Amendment

Dear Ms. Green:

In response to Work Assignment R10209, Task 5, under EPA Contract 68-W-02-022, Booz Allen Hamilton Inc., is pleased to provide the slag data review pertaining to the FMC facility located in Pocatello, ID.

If you have any questions or comments concerning this submittal, please contact me at (206) 386-4792.

Sincerely,



Ed Greutert
Work Assignment Manager

BOOZ ALLEN HAMILTON INC.

Enclosures

cc: Linda Meyer, EPA Work Assignment Manager
Jerome Lofton, EPA Contracting Officer (cover letter only)
BAH PMT